

Appln. No. 10/736,309
Amendment dated Feb. 28, 2006
Reply to Office Action of Nov. 29, 2005
Docket No. BOC9-2003-0058 (429)

REMARKS/ARGUMENTS

These remarks are submitted in response to the Office Action of November 29, 2005 (Office Action). As this response is timely filed within the 3-month shortened statutory period, no fee is believed due.

In paragraph 1 of the Office Action, Claims 15-18 were rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. Applicants have amended Claims 15-18 to expressly recite a computer-readable medium. Applicants thank the Examiner for suggesting the language and respectfully request withdrawal of the objection.

In paragraphs 2-3, Claims 1-18 were rejected under U.S.C. § 102(b) as being anticipated by U.S. Published Application No. 2004/0203788 to Fors, *et al.* (hereinafter "Fors").

Independent Claims 1, 7, 11, and 15 have been amended to further emphasize certain features of Applicant's invention not taught by the prior art. Newly-presented Claims 19 to 21 have been added to recite novel aspects of the invention not previously presented. These amendments are supported throughout the Specification, and no new matter has been added by virtue of the amendments.

I. Applicant's Invention

It may be helpful to reiterate certain aspects of Applicant's invention prior to addressing the references cited in the Office Action. In one aspect, the invention includes a gateway serving as an interface between a mobile network and a wireless network. The gateway is configured to send an intentionally heightened signal strength indicator to the mobile network for prompting the mobile network to recognize the gateway as a preferred path for handing off a call. The gateway routes the call from the mobile network to a wireless access point of the wireless network via a packet-switched network, such that the call is conducted via a wireless communications link using the wireless access point.

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The gateway can further include a mobile network interface comprising a transport interface configured to exchange mobile control channel signaling data with the mobile network and a voice channel interface configured to exchange audio data with the mobile network; a mobile control and messaging component configured to communicate with the mobile network via said transport interface, a call control component configured to format the mobile control channel signaling data from the mobile network for use over the packet-switched network, a voice media conversion component configured to format voice data for sending a real-time streaming protocol over the packet-switched network; and an interface to exchange call control data and voice data with the packet-switched network.

Within the gateway interface, a method of call control between a mobile network and a wireless network is provided. The method includes establishing, with a mobile network, a control messaging link for exchanging mobile control channel signaling data. The method includes establishing a voice channel link for exchanging audio data for a mobile call. The method includes sending an intentionally heightened signal strength indicator to the mobile network for prompting the mobile network to recognize the gateway as a preferred path for handing off the mobile call. Upon establishing a communications link with a packet-switched network, the mobile call can be routed from the mobile network to a wireless access point via the packet-switched network, such that the call is conducted via a wireless communications link using the wireless access point.

In one aspect, a method for mobile device handoff between a mobile network and a wireless network is provided. The method can include, on a mobile device having connection to a mobile network, detecting a wireless access point, and lowering a transmission power to the mobile network. At the mobile network, the low power signal from the mobile device can be detected. In response, the mobile network can identify other systems available to handle communication with the mobile device as a result of the low power signal. A gateway associated with the mobile device can indicate to the

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mobile network that a heightened signal strength has been received from the mobile communication device for prompting the mobile network to handoff to the gateway. In one regard, the heightened signal strength may not be indicative of the actual signal strength of the mobile device; that is, the gateway fabricates a signal strength level sufficiently high to be assigned as the hand off network.

The method can further include, on the mobile device, sending a signal-based invitation through a wireless network to a SIP server. The invitation can be forwarded to a SIP server via the Internet by the gateway associated with the mobile device sending the invite. The gateway can authenticate a SIP user agent on the mobile device. Upon authenticating the SIP user agent, an internet protocol (IP) streaming session can be established between the gateway and mobile device. The mobile device can switch over from the mobile network to the gateway, and the call between the mobile network and the mobile device can be torn down. The mobile device can be handed off from the mobile network to the wireless network.

II. The Claims Define Over the Prior Art

As already noted, independent Claims 1-18 were rejected as being anticipated by Fors. Applicants respectfully submit, however, that Fors fails to expressly or inherently teach every feature of Claims 1-18, as amended.

Fors is directed to a method of handoff between a cellular network (mobile network) and a WLAN (wireless network). Fors describes a method of handing off a mobile device from a mobile network to a wireless network. As a mobile subscriber (MS) moves within a coverage area, the MS performs signal strength measurement and establishes contact with an access point (AP). At some point, the MS determines that a handoff from a serving base station (BS) to the AP is preferred. The MS may determine this based on criteria such as the relative signal strength of the BS and the AP, the relative

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cost of the wireless service, and/or user indications of preference. For example, the user may want to set an MS option to switch to WLAN service whenever signal conditions allow or whenever the WLAN service is determined to be cheaper (Col. 3, paragraph [0029]).

Fors discloses that a hand-in request to perform the handoff is sent using an IP packet addressed to a cellular access gateway (CAG). As described, the packet is used to trigger a handoff procedure from the mobile network (cellular) to the wireless network (WLAN). Fors discloses that the handoff message is necessary because the prior art messaging (IS-41/MAP) does not provide for the handoff target to initiate an inter-MSC handoff. That is, Fors is overcoming a specific limitation of a cellular-to-WLAN handoff wherein the serving cellular Mobile Switching Center (MSC) is not aware of the non-cellular WLAN network (Col. 3, paragraph [0030]). Fors specifically discloses in the background section that two aspects of the prior art messaging handoff are particularly pertinent. First, it is the MS that identifies the handoff target to the source BS and MSC by providing the pilot offset to the target. Second, it is the source MSC that initiates the handoff message by translating the pilot offset to a target BS/MSC. If the target is a WLAN AP, there is no messaging to enable either the MS or the source MSC to identify the target WLAN AP. (Col. 1, paragraph [0010]). Notably, Fors is directed to providing a handoff solution wherein the mobile device is incapable of handing off directly from the mobile network to the wireless network. Understandably, Fors provides a mechanism that accommodates a handoff between a mobile network and a wireless device by sending an IP based message to inform the mobile device to send a MAP FACDIR2 message from an identified serving MSC to the wireless network. That is, the mobile device delegates responsibility to the mobile network to contact the wireless network on behalf of the mobile network. The mobile device does this since it is not capable of communicating with the wireless network directly. The mobile network contacts the wireless network in response to a MAP FACDIR2 message sent by the mobile device.

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Notably, the MAP FACDIR2 is an instructive message.

In contrast, Applicant's invention is directed to a mobile device that intentionally lowers a signal strength indication such that a mobile network "thinks" the mobile device is receiving poor signal strength (See Specification Pg. 13, paragraph [0039], "*...the mobile communications device can lower the transmission power used to transmit to the mobile network*"). In response, the mobile network attempts to identify other available MSCs or other networks that have stronger coverage for supporting communication with the mobile device (See Specification Pg. 13, paragraph [0040], "*...having received information regarding the weakened signals from the mobile communications device, the MSC attempts to hand-off the call to another MDCS*"). Notably, the mobile device intentionally lowers the signal strength to "trick" the MSC that a poor signal condition is present (See Specification Pg. 13, paragraph [0040], "*...the mobile communications device can be configured or programmed to reduce transmission power to the mobile network or attenuate signals sent to the mobile network to a predetermined level such that when the weakened signals from the mobile communications device are detected by the mobile network, a hand-off condition in the MSC is triggered*").

The lowered signal strength is a fabricated message that does not contain any instructions. Whereas Fors is directed to instructing a mobile network to explicitly perform a handover task by having the mobile network send an instructive message to neighbor systems, Applicants are prompting a mobile network to perform a handoff to neighbor systems in response to a quality condition, specifically the signal strength. The mobile network is not aware that it is being duped into engaging a hand off condition. It should be clear that the mobile network is not being instructed to perform any specific tasks; the mobile network is simply responding in accordance to processes associated with low signal strength conditions. In Applicants' invention, the mobile device intentionally lowers a signal strength to cause a handover to a second network. In

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addition, a gateway associated with the mobile device fabricates a heightened signal strength in order to capture the attention of the mobile network that is "looking" for a high-power alternate network to provide coverage. Understandably, the mobile device and the gateway work in collusion to entice the mobile network to hand off to the gateway such that the gateway can provide wireless network connectivity to the AP of interest to the mobile device.

For example, the mobile device may be in a strong mobile network coverage area under a MSC. Wireless services from a wireless network in the area are available to the mobile device, albeit at a lower signal strength. The mobile device may prefer to connect to the wireless network to receive the associated wireless services. However, the MSC will generally not perform handoff unless the signal strength falls below a certain threshold. Accordingly, the mobile device would be unable to hand off to the wireless network. Understandably, the mobile device communicates with the gateway to coerce a hand off. The mobile device intentionally lowers its signal strength, while the gateway fabricates a heightened signal strength received by the mobile device. The MSC "sees" poor reception from the mobile device, but "sees" that the gateway has a strong signal condition. Hence, the MSC allows a handoff to the gateway.

The respective inventions as described by Applicants and by Fors, though accomplishing similar functions, are notably distinct and separate inventions. There is no commonality between the two inventions, nor is there any overlap of teachings between the inventions.

Applicants respectfully assert that the claims as amended are not anticipated by Fors. Applicants further respectfully assert that whereas each of the remaining claims depend from one of the amended independent claims while reciting additional features, each of the dependent claims likewise define over the prior art. Applicants, therefore, respectfully request that the rejection of claims 1-18 be withdrawn and that the additional new claims 19-21 be allowed.

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CONCLUSION

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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